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Breast Conservation Surgery after Probe Lumpectomy ——Its Usefulness on the Informed Consent

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Abstract A 48-year-old woman presented to our department with a right breast lump measuring 13mm × 12mm × 10mm. Malignant tumor was suspected based on the physical examination, mammography and ultrasonography. Probe lumpectomy was performed. Histology revealed a papillotubular carcinoma, invading into fatty tissue. There were slight lymphatic vessels involvement without ductal spread. Surgical margins were uninvolved. We obtained informed consent with confidence that there were no risk factors of tumor recurrence in the residual breast. She underwent axillary lymph nodes dissection followed by irradiation to the residual breast and chemo-endocrine therapy post-operatively. She remained disease-free at two months after axillary lymph nodes dissection.

Key words: Probe lumpectomy, Breast conservation surgery, Informed consent

Introduction

Probe lumpectomy was advocated by Akiyama[1)] to document the spread of breast cancer. In this case, we could obtain informed consent with confidence that there were no risk factors of tumor recurrence in the residual breast by doing probe lumpectomy. We report the usefulness of probe lumpectomy on the informed consent.

Case report

A 48-year-old woman presented to our department in March 1996 with a right breast lump. Physical examination revealed a hard tumor in the upper outer quadrant. The distance between the nipple and the tumor was 50mm. The axillary lymph nodes were not palpable.

Mammography showed spiculated irregular shadows measuring 13mm×12mm×10mm in diameter with no calcification (Fig.1). Ultrasonography showed an irregular heterogeneous mass (Fig.2).

Probe lumpectomy performed in March 1996 revealed a papillotubular carcinoma. Hormone receptor analysis by radio-receptor assay revealed the presence of estrogen and progesterone receptors. Taking the histological findings into consideration, we obtained informed consent from the patient and her family. They decided breast conservation surgery. Axillary lymph nodes dissection up to level II was performed in April 1996. 50Gy irradiation was given to the residual breast. Tamoxifen, goserelin and doxifluridin were administrated. She remained disease-free at two months after the axillary lymph nodes dissection.

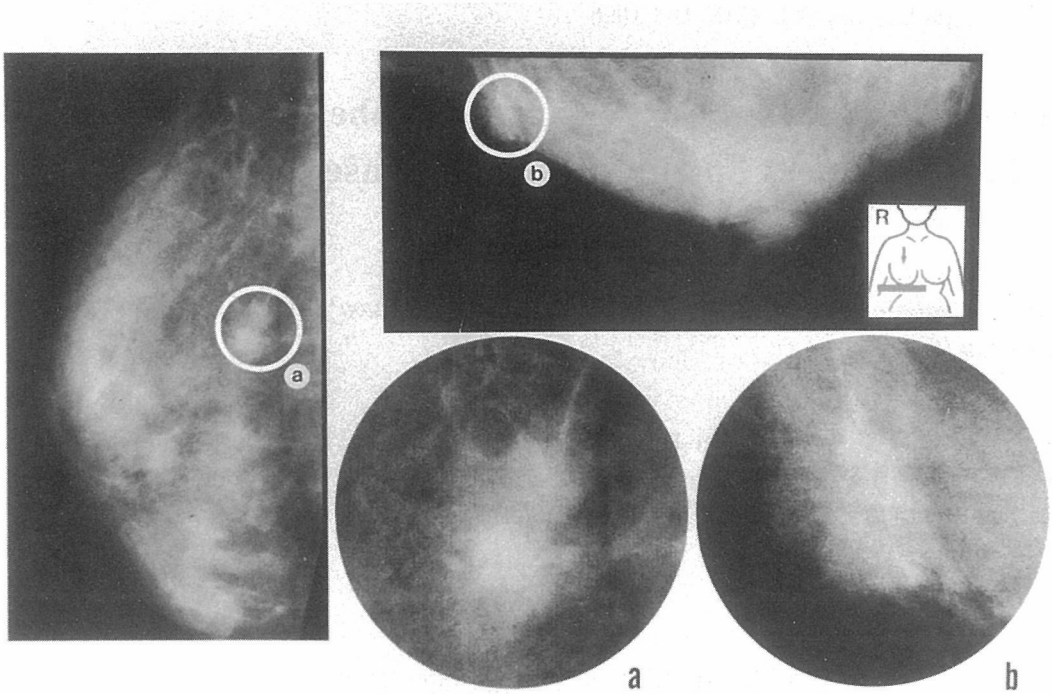

Fig. 1 Mammogram revealed a spiculated shaped mass (arrow).

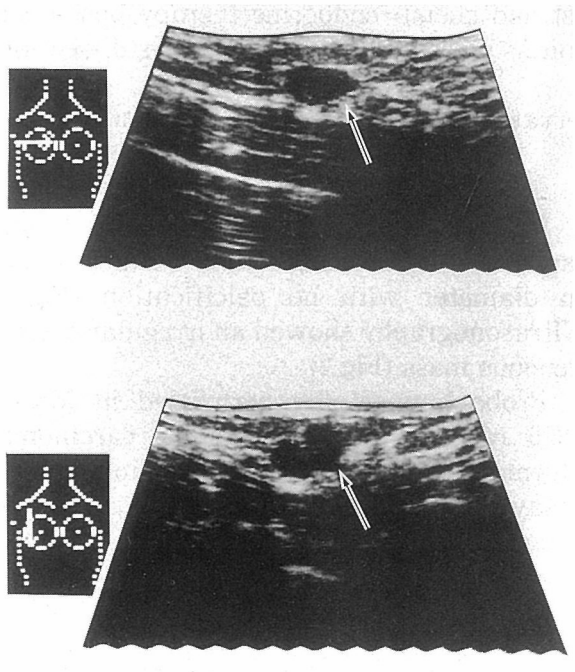

Fig. 2 Ultrasonogram revealed an irregular heterogeneous mass (arrow).

Probe lumpectomy

Under local anesthesia, a spindle-shaped incision was made over the palpable tumor and the lump with a free margin of at least 2cm was removed.The fascia of the major pectoral muscle was resected(Fig. 3). The resected specimen was radiographed to ensure that the tumor was located in the center of the specimen (Fig.4). Clippings to the bed in the residual breast were made at three points, namely superiorly, inferiorly and medially.

Pathological findings

The specimen was subjected to serial section at 5mm interval. The size of the tumor was 9mm × 4.5mm. It was a papillotubular carcinoma, invading into fatty tissue with slight lymphatic vessel involvement but without ductal spread. Surgical margins were uninvolved. The tumor was staged as t1n0m0(stage I) according to general rule for clinical and pathological recording of breast cancer[2].

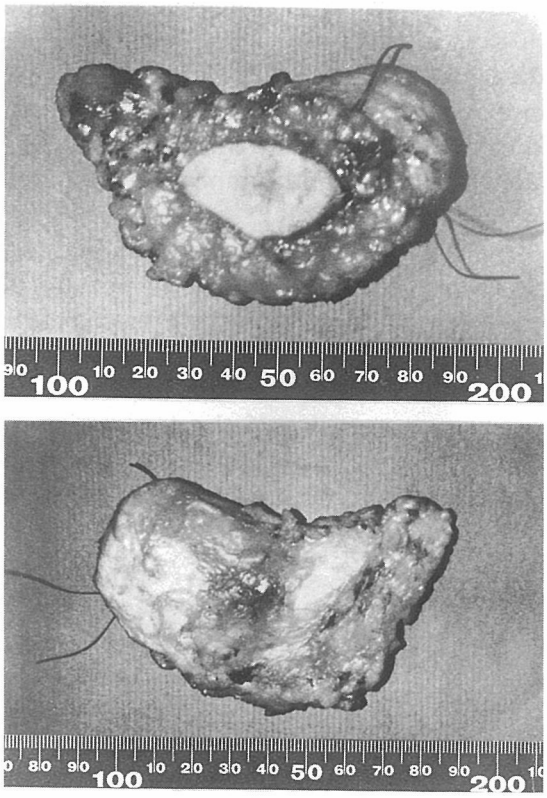

Fig. 3 Resected specimen. The tumor was resected with a free margin of at least 2cm together with skin (upper) and the major pectoral fascia (bottom).

Disccusion

From the reports of Veronesi[3] and Fisher[4], breast conservation surgery has become a standard therapy for early breast cancer in Europe and America[5]. Since ten years ago, it has been gaining acceptance in our country. Recently, its percentage in Japan was 20.4% of all breast surgery[6]. Tumor recurrence in the residual breast after breast conservation surgery has become a major problem. If the patient is to undergo mastectomy, it is unnecessary to think of tumor recurrence in the residual breast. In breast conservation surgery, we must decrease the risk of tumor recurrence in the residual breast. It has been reported that the risk factors of tumor recurrence in the residual breast were ① extensive intraductal components[7], ② marked lymphatic vessel involvement[7] and ③ multicentric cancers[8].

Mammography, ultrasonography and magnetic resonance imaging have been used to estimate the distribution of intraductal spread but the results have not been helpful[9]. Mammography had been used most often and it showed calcification shadows well. However, the calcifications were often localized to the

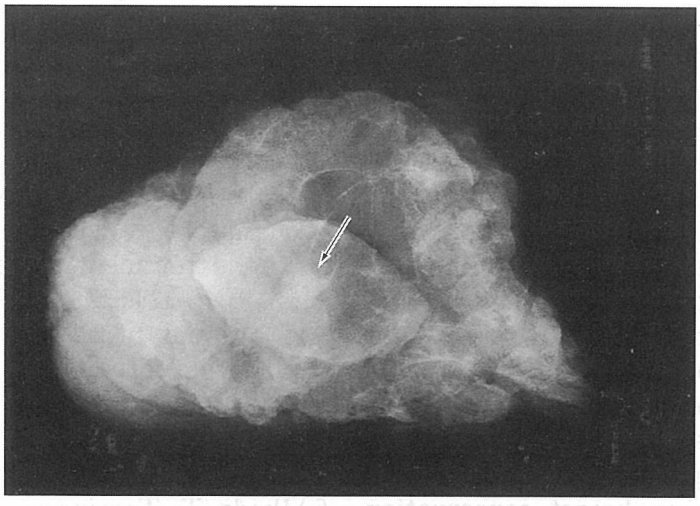

Fig. 4 Specimen radiograph. The tumor was located in the center of the specimen (arrow).

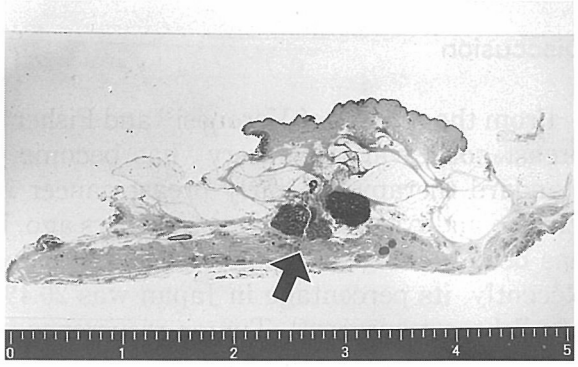

Fig. 5 Low power view of the cut specimen. The tumor was 9mm x 4.5mm in diameter (arrow).

main lesion in the non-comedo type of breast cancer and so underestimating the distribution of intraductal component[10]. Hence, the distribution of intraductal component must be diagnosed histologically. The diagnosis of malignancy by frozen section is sometimes difficult and some cases must be diagnosed on paraffin sections[11]. Lymphatic vessel involvement also cannot be estimated by preoperative imaging and is also diagnosed histologically. Probe lumpectomy was advocated by Akiyama et al. to look for the spread of breast cancer cells[1]. This would also show lymphatic vessel involvement. A few cases had involved resection margins or marked lymaphtic vessel involvement on histology after breast conservation surgery, hence secondary mastectomy or booster irradiation had been added. It was very stressful for patients, even if they had been given enough prior informations. If probe lumpectomy was done, these problems could be avoided. In fact, we could obtain informed consent with confidence that there were no risk factors of tumor recurrence in the residual breast. We could also discuss with the patients about cosmesis of the residual breast. This is also one advantage of probe lumpectomy. If the surgical margins were positive, breast conservation surgery might be extended by additional resection or booster irradiation according to circumstances, aided by intraoperative clippings placed. The incidence of unilateral multicentric breast cancer in Japan was reported to be 6.5%[12]. If there were multicentric cancers, discovered histologically, we would perform mastectomy. A clinically occult breast cancer is possibly detected by probe lumpectomy. The incidence of detecting clinically occult breast cancer at the time of quadrantectomy and lumpectomy was 6.6% and 2.6%, respectively[13].

Probe lumpectomy has many advantages in selecting patients who are suitable for breast conservation surgery. It can be performed under local anesthesia. It is indicated in patients who might be selected for breast conservation surgery. If the tumor was not malignant, probe lumpectomy would be a cure by itself and be permitted because of its less-invasiveness.

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